

SIGMA XI QUARTERLY

Vol. VIII

DECEMBER, 1920

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SIGMA XI QUARTERLY

EDITORIAL COMMITTEE

Floyd Karker Richtmyer Edwin Emery Slosson
Henry Baldwin Ward

VOL. VIII

DECEMBER, 1920

No. 4

OFFICIAL NOTICE

The annual convention of the Sigma Xi Society will be held in Chicago in connection with the meeting of the American Association for the Advancement of Science. The sessions will occupy the day on Thursday, December 30. Exact details concerning the place of each meeting will be posted at the headquarters of the American Association or printed in the final program of that organization. The sessions are as follows:

- 10:30 a. m. Meeting of Executive Committee.
- 2:00 p. m. Convention meeting.
- 6:00 p. m. Annual Dinner.

This constitutes the official notice to chapters. In connection with the appointment of delegates, attention is drawn to the editorial by President McClung printed on the next page. It is highly important that each chapter should be well represented both for its own good and for the general welfare of the Society. The selection of delegates who will actually discharge the duties and who have the experience qualifying them to aid the convention in its deliberation will naturally redound to the advantage of the chapter.

The General Convention will be held at Emmons Blaine Hall, Room 117. This building is on the North Side of the Midway between Kimbark and Kenwood Avenues.

The banquet will be held at the Del Prado Hotel. This hotel is located between the Convention Hall and the Illinois Central.

Tickets for the banquet (price \$1.50) can be obtained at the headquarters of the American Association. Members should register and secure tickets at the earliest possible date.

EDITORIAL

THE NEXT STEP

Many horizons have been widened by the experiences of the last few years. The importance of science to the world's welfare has received such a demonstration as could not have been expected in many decades of less eventful periods. Research as the essential element of scientific progress stands out in unquestioned position. To Sigma Xi, for more than thirty years the leading organization in our universities devoted to the advancement of scientific research, the opportunity for service opens wide and inviting.

And fortunately we are prepared for it through the change in our Constitution, recommended by the "elder statesmen" who guided the course of the Society in its earlier days, and adopted by the action of the Convention in St. Louis. The virtue of this change is twofold—it increases the value of membership in the Society and it makes possible a much wider extension of its influence. It has been the experience of those chapters where associate membership has been established that the undergraduate students value this recognition as highly as they formerly did the only attainable connection with the Society—full membership—while the latter acquires increased importance as the recognition of real attainment.

It would probably be the wish of all true scientists that our workers might find ample reward for their efforts in the joy of accomplishment, quite aside from any praise, or gratification gained by selective associations for mutual encouragement and recognition. Unfortunately human nature craves these adventitious aids to endeavor and even scientists find inspiration and help in recognition and reward from those qualified to judge achievements of merit. Too much should not be made of that element in association which finds expression in the organization of mutual admiration societies qualified by the term "honor." Recognizing the true significance of such distinction, those most interested in the welfare of the society have subordinated it to the greater good which comes from the strengthened purpose and clearer view gained through personal contact in small groups of persons of similar tastes and interests.

While the value of such contact is great for men of all degrees of experience, it has particular significance for the young man just

beginning to find himself. No one of us who has had the inspiration thus given by the Sigma Xi can doubt its importance in strengthening the forces of science. It was the fear that this element might suffer loss that inspired most of the opposition to the constitutional change providing for associate membership. This provision should, on the contrary, greatly strengthen the Society as a help and inspiration to prospective and beginning investigators. Freed from the danger of a membership dominated by the untried and unachieving, existing chapters will not oppose the granting of charters to institutions in which large numbers of productive investigators are not produced. It should now be possible to extend the influence of Sigma Xi into every institution where real scientific work is done and where investigators are trained to do it. Only in this way can the full measure of the Society's influence be realized.

This is a practical matter and should be viewed practically. A study of the lives of our leading men of science will show that a great proportion of them have received their early training in institutions where large graduate schools do not exist. An inspection of the records of fellowship holders in our universities will reveal the fact that most of them received their start in science in the smaller colleges. If we would render full service in the encouragement of the beginning investigator we must admit the Society into these training schools of scientists.

*Inquiries and applications from colleges, agricultural schools and other institutions doing good scientific work and sending out regularly numbers of students prepared for advanced training and investigation in science, have been sent in for consideration. The action of the Society in adopting the constitutional provision for limited charters to institutions not organized to carry students through the later years of graduate work would seem definitely to commit it to the policy of rapid expansion. The time is ripe for such measures. A careful consideration of plans looking toward the realization of this policy is the outstanding business before the Convention at Chicago on December 30. Chapters are earnestly urged to make careful selection of their representatives to the end that we may have the advice and help of the men who have most thoughtfully considered the interests of the Society.

C. E. McCLUNG

SIGMA XI FELLOWSHIPS

Members of the Society of Sigma Xi will recall that some two or three years ago there came from the then president, Professor Julius Stieglitz, the suggestion which was finally worked up into a definite plan, that it would be appropriate for the national society of Sigma Xi to establish one or more research fellowships. The several chapters were asked to consider this matter. Each chapter was requested to appoint a representative to a large national committee the duty of which would be to organize a plan of campaign and to collect funds for these fellowships.

Quite apart from the desirability of a plan which would contribute to the advancement of science, such fellowships would add greatly to the interest of the members of the Society in scientific work. At the present time, if you were to ask any member of Sigma Xi to state in concrete terms what the national Society stands for you would probably not get a very direct answer. Every one of us interested in Sigma Xi believes that it has a definite purpose which is expressed in our constitution in the words "the promotion of original investigations in science, pure and applied." The individual chapters contribute to the carrying out of this policy by electing new members and by holding meetings, formal or informal, for the discussion of scientific subjects. But except for the national convention which comes once per year and which, because of limited time, must confine itself to purely business matters, there is very little in the way of concrete reality to bind the several chapters together into a national organization. It is perhaps this one fact which is responsible for the indefiniteness of our ideas as to the purpose of Sigma Xi.

If I were to express in a few words my idea of that for which Sigma Xi stands it would be that Sigma Xi bears to research "in science pure or applied" exactly the same relation that the church bears to the everyday affairs of life. The church stands for an ideal which consciously or unconsciously we all look up to. The church in the main is heartily supported; its value to the community is unquestioned. In the same way Sigma Xi as a society stands for an ideal in research. In the Society are gathered those who have high aspirations in regard to original investigations, as well as those who

perhaps have a fundamental interest in research but who, because of other interests and activities, cannot engage directly therein.

If this represents the fundamental guiding principle which from the early days has bound together in "fraternal relations" the members of individual chapters, so this same idea should today bind together the chapters of the society. Individuals in a chapter have concrete things upon which to focus their interests; namely, the election of new members and the holding of meetings. All that is needed correspondingly to bind the chapters together is some concrete thing in which we have a common interest, something of more scientific worth than the holding of a business meeting once a year and the transaction of matters dealing solely with organization. What thing could be more concrete, in which members of all chapters could center their interest, than a fellowship established by the small contributions from a large number of members of the Society? If once per year there should appear in the SIGMA XI QUARTERLY or some similar journal an important contribution to science growing out of the fellowship, each one of us could take a certain pride in the feeling "I contributed my mite to make this work possible."

This is only one of the many arguments in favor of establishing Sigma Xi fellowships. But when we come to consider the ways and means by which the necessary money can be collected the task becomes very great indeed. It is thinkable that we might persuade some multi-millionaire to endow one or more fellowships, but to my mind that would defeat their very purpose. It is not the actual accomplishment of some particular piece of research that we are interested in; it is the holding up of something by means of which all members of the Society may always keep in mind their common ideal.

At the present time Sigma Xi is supported by a comparatively small proportion of the total membership, namely by those who by chance happen to reside in universities where there are chapters. Definite figures are not available to me at the present moment but distinctly less than twenty per cent of the total elected membership is classed as active members. The remainder fall under various classifications the largest of which is the class of alumni members. The following is an approximate classification of our membership at the present time:

Originally the constitution provides for only two classes of members.

1. Active members: those who are resident in and officially connected with a college or university where there is a chapter of the society. These pay dues and have all electoral rights of the society.
2. Alumni members (Class 1): those who, having been elected to membership in a chapter, have removed to a university or place where no chapter exists. (The original idea appeared to be that elected members would be largely seniors, who of course soon became *Alumni* of the University and therefore would logically be called *alumni* members of the chapter.)

As the society grew, however, other and varied classes of members either became provided for by revisions to the constitution or else were recognized in practice. These are:

3. Alumni members (Class 2): those alumni of the institution who may be elected to membership in the society at least five years after graduation (from *an undergraduate* course. In practice at least, those who have received advanced degrees, such as A.M. or Ph.D., from the institution are not eligible to such election.)
4. Resident alumni members: those alumni who reside in the immediate neighborhood of the chapter, but who are not actively connected with the institution to which the chapter belongs (e. g. a Physician practicing in Ithaca, who was elected to the Cornell Chapter as an undergraduate.) These have all rights of the chapter, save voting for new members.
5. Resident members in alumni chapters: There is only one such chapter at present, namely that at Washington, D. C. This chapter, and therefore its membership, have all the rights of the Society, save that the chapter does not elect new members.
6. "Neighboring institution" members: those who are elected under the provision of the constitution which permits a chapter to elect a member of a neighboring institution.
7. Associate members (resident): (meaning obvious.)

8. Associate members (*non-resident*): those who, after having been elected to associate membership in a chapter, leave the university.
9. There will, in turn, have to be a provision for associate members who reside in the town where their chapter is located, but who are not connected with the institution.

Of the 13,000 odd members of the society, by far the largest number is to be found in class 2. These have no connection with any chapter, nor with any of the affairs of the society. They get neither benefit nor inspiration from the Society's activities; and, what is of more importance, the society loses very valuable support and council. The key, frequently not worn at all, is the only reminder of Sigma Xi. In fact there have been cases where men have actually forgotten that they were elected to membership.

Not only is this complex membership classification exceedingly unwieldy and unsatisfactory, but the very fact that only such a small proportion of our total membership can by the provisions of our constitution be classed as active members means that we are making very poor and inefficient use of our "natural resources" for supporting such projects as the Society may have in mind. The burden of supporting Sigma Xi falls upon the small group of members associated with the colleges. At a time, twenty-five years ago, when practically all research in both pure and applied science was confined to universities this may have been logical and wise. But it certainly is quite inconsistent with the present order, where so much research is being done by the industries.

Further, this great disproportion of non-active to active membership has quite naturally given rise to the feeling, so frequently expressed even by members of the Society, that the only *real* function of the Society is to elect new members; to confer what almost amounts to an empty honor on a young man who has shown some proficiency in research: a sort of a "mutual admiration" society, or a "pat-you-on-the-back" affair, as it were. In reality, what else can a young man think, who, having been elected to membership at the end of his senior year, leaves the chapter and never hears of it or the Society again. A large proportion of the membership in class 2 above have had just this experience.

This conferring of an honor by election to membership is indeed one of the functions of the Society, but it is *only* one. And even so

it is simply a *means* to an end, not an end in itself. The *real* end is to encourage honest scientific investigation, whether in pure or applied science. One may well raise the question: To what extent is real scientific investigation encouraged by electing a senior at the end of his course *and then setting him adrift?* The recipient of the honor may have felt some personal satisfaction. But the Society has not thereby "encouraged original investigations in science, pure and applied."

The case would be entirely different, however, if after leaving the institution the members were kept in touch with the Society and its development.

This might be accomplished by a plan, now before the Council for consideration, which recommends:

1. That all previous classifications of membership be at once abolished and that the Society consist of two classes of members only.
 - (a) Active members.
 - (b) Associate members.That a person once elected either to active or to associate membership shall, unless he resigns, remain an active or an associate member, connected with the chapter which elected him or with some other chapter with which he may later affiliate.
2. That all active members shall pay, say \$2.00 per year, and all associate members \$1.00 per year, *to the Society*, through the chapter. In addition members resident in or near an institution may contribute to local chapter expenses such dues as each chapter may direct.
3. That three-fourths* of all money thus collected by the society shall be used for the purpose of establishing Sigma Xi fellowships to be awarded in some way yet to be determined.
4. That one-fourth* of all money collected be used for Society expenses, *including the publication of a Journal*, which should be received by every contributing member. This Journal would publish the results of the investigations growing out of the Sigma Xi fellowships, and such other material, scientific or otherwise, as would further the objects of the Society.

*This proportion is illustrative only.

5. That, beginning with the adoption of these provisions all newly elected members be classified as herein specified; and that the then existing alumni members (class 2) be canvassed, inviting them to become *active* members under these new provisions.

This general question, perhaps not in the exact form suggested above but closely allied thereto, will come up for discussion at the coming convention in Chicago. It is hoped that every chapter can hold a special meeting to consider such recommendations as it should like to make in regard to these fellowships, paying particular attention to the additional support which the Society might receive from the present non-active members. If some such scheme as the above were to be adopted the contributing membership instead of being two thousand might easily be raised to eight or ten thousand. This would make possible a Journal in which Society business affairs would be simply a minor part. At any rate, whether this scheme or some other be adopted, Sigma Xi could be made much more of a real force in scientific endeavor if we can have a vigorous, active national organization. It is true that each of us belongs to half a dozen or more societies dealing in a concrete way with research. I refer to such societies as the American Physical Society, the Geological Society, the Chemical Society, and a host of others. It is natural that these societies should absorb the larger part of our attention. But still we should ever keep before us the question, "Can we afford to neglect the church of science?"

Cornell University

F. K. RICHTMYER

ASSOCIATE MEMBERSHIP IN THE UNIVERSITY OF CHICAGO CHAPTER OF THE SIGMA XI

Practically since the inauguration of the University of Chicago Chapter of the Sigma Xi only faculty members and graduate students have been considered eligible to membership on the basis of proved ability in research. The creation of the associate membership by the amendment of the constitution of the Society came to the Chicago Chapter as a welcome, long awaited means of having the roots of the chapter penetrate to the higher undergraduate levels without lowering the high standards for membership in the chapter. Undergraduates of decided promise, who have shown *critical ability or originality* as well as a high grade in scholarship have been elected these few years now to associate membership. Election is considered a very real honor and the associate emblem has been worn with evident pride. It is worthy of note that the by-laws governing election to associate membership place quite as much emphasis on *proved critical powers or originality* as on scholarship alone: thus the minimum scholarship requirement is the average grade B (85 to 90%), but this must be combined with a written recommendation from the major nominating department, that the candidate had shown the above mentioned ear marks of inherent research promise. Application alone, a good memory alone, will not open the doors to Sigma Xi!

In addition to undergraduates, graduate students are very frequently elected in the Chicago Chapter to associate membership before they are advanced to full membership. Thus, candidates for the Master's degree and candidates for the Doctorate degree who are just beginning their research work, are frequently nominated and elected to associate membership pending the time that they have had an opportunity to demonstrate not only promise but actual ability in original work. Advancement to full membership is sought for and welcomed as a signal honor by associate members.

In this way the associate membership has tended to strengthen the serious interpretation placed by the Chicago Chapter of the Sigma Xi on the research standards placed by the constitution on the requirements for admission to Sigma Xi membership: achievement, not mere promise, is aimed at as the standard. With the associate membership as a means of stimulating at an early date

the undergraduate of promise, of giving him the benefit of the companionship of the real workers, while feeling himself a mere novice, the chapter is in a most flourishing condition, resting on a broad democratic basis of membership and pointed toward a high ideal.

The writer cannot help but feel that the more this interpretation of our constitutional requirements puts the emphasis on achievement in research as requisite for full membership, the less frequently will he and others hear the recent frank comment in a meeting of eminent scientific men that it was the speaker's (himself a Sigma Xi member) impression that Sigma Xi represents *dilettantism*, *amateurism* in science and not exclusively real scientific effort! That has been in fact a very widely held view—let us face the facts—both here and abroad.

But the writer was glad to insist in reply that the efforts of the leaders of the Society in the last ten years have been steadily and successfully away from the old lower standards of mere promise to those of real achievement, and that success was attending these efforts by the transference of the center of gravity of our membership and activity from the undergraduate to the graduate and technical schools of our various chapters.

Let the good work go on!

Chicago, October 24, 1920.

JULIUS STIEGLITZ

CHAPTER REPORTS

THE CHICAGO CHAPTER

The regular meeting for the Autumn Quarter, 1919, of the Society of the Sigma Xi was held Thursday, November 20. Professor Anton Julius Carlson of the Department of Physiology addressed the Society on the Effects of Prolonged Starvation on the People as Exemplified by the Conditions in Central and Eastern Europe during the winter of 1918-19.

The following members were elected to the chapter:

GRADUATE STUDENTS

THEODORE HIERONYMUS BAST, A.B. (Ripon College, 1912)

Fellow in Anatomy

Salivary Glands.

HUGO LEANDER BLOMQUIST, S.B. (Univ. of Chicago, 1916) *Botany*

Comparative Anatomy of Angiopteris.

HAROLD CLIFFORD GOLDTHORPE, S.B. (Utah Agricultural College, 1917)

Fellow in Physiological Chemistry

Two Years in Soil Bacteriology research at Utah Agricultural Experiment Station with J. E. Greaves: 1. Effect of Alkali Salts on the Nitric Nitrogen Accumulation in the Soil. 2. Antagonistic Action of Iron and Manganese Salts toward Alkali Salts in the Accumulation of Nitric Nitrogen Soils.

AUBREY CHESTER GRUBB, A.B. (Teachers College, 1917) S.M.

(Purdue University, 1919)

Chemistry

Chemical Reactions in the Corona Discharge.

SAMUEL CHESTER HENN, A.B. (Colorado College, 1917) S.M.

(Chicago, 1919)

Instructor in Physiology, Marquette University Medical School
Effect of Splenectomy in the young.

ISADORE MEYER JACOBSON, S.B. (Chicago, 1917)

Research Associate in Chemistry

Carried out War research at the Bureau of Standards, Washington. Now engaged in research on mercuro-organic compounds for the Sprague Institute.

HILARY STANISLAUS JURICA, S.B. (St. Procopius College, 1918)

Teacher of Botany in St. Procopius College, Lisle, Ill.

Comparative Morphology of the Umbelliferae.

JOHN WAYNE LASLEY, A.B. (North Carolina, 1910), A.M.
(Ibid., 1911)

Assistant Professor in Mathematics, University of North Carolina

Ph.D. thesis on some transformations of the flecnod congruence. Has published some non-research papers. Fellow at North Carolina, 1910; at Johns Hopkins, 1915-16.

LOUIS LEITER, S.B. (Chicago, 1919), Assistant in Pathology

Physiology

The Adjuvant Action of Saliva on the Precipitation of Casein and its Digestion by the Gastric Juice.

MAYME IRWIN LOGSDON, S.B. (Chicago, 1912), A.M. (Ibid., 1914)

Fellow in Mathematics

Ph.D. thesis subject, Diophantine equations from the standpoint of their genera.

ELIZABETH WILHELMINA MILLER, Ph.B. (Chicago, 1914),
A.M. (Ibid., 1915)

Richards Fellow in Household Administration Nutrition

The Solution of Antimony in Enamel Cooking Utensils. Use of Soy Bean Meal as a Diabetic Food. Problems in Cake Making. Research in progress.

JAMES J. MOOREHEAD, M.D. (Rush Medical College,) Surgeon

Physiology

Has published about ten papers. The earlier papers were on clinical subjects. The last four were on the nature of the intoxication or cause of death following intestinal obstruction and on duodenectomy. Has spent last eight or more years at research in this department.

FRANK PADEN McWHORTER, S.B. (Vanderbilt, 1917)

Botany

Water absorption—thallus changes in lichens. Relation of epiphylls to their hosts. Development of Platyhemintbes in Ordovician. Laws of distribution of wheat rust.

WALTER LINCOLN PALMER, S.B. (Chicago, 1918), S.M. (Ibid., 1919), Assistant in Physiology

Physiology

The Importance of the Vagi and the Splanchnic on the Onset and Severity of Parathyroid Tetany.

GEORGE ROSS ROBERTSON, A.B. (Pomona, 1909), S.B. (California, 1911), S.M. (Chicago, 1919)

Research Assistant in Chemistry

A Study of Tetranitromethane. Research on Arsphenamine and related Subjects.

FRANK V. SANDER, S.B. (Univ. of West Virginia, 1912)

Assistant in Chemistry

The Preparation of d- and l- 1, 3 dioxibutyric acids and the study of their derivatives.

MAX SASULY, S.B. (Chicago, 1912), S.M. (Ibid., 1913), Assist-

ant Physicist, Bureau of Standards *Mathematics & Physics*

Has been engaged in theoretical electrical research in Bureau of Standards for about six years. Basis of definition of standard value of g. (Bureau of Standard Files). A general class of polynomial formulas for approximate integration. (Abst. pub. Proc. Washington Acad. of Sci.) Theory of Electrical Networks.

WILLIAM FREDERIC SCHROEDER, A.B. (Carleton College, 1914)

S.M. (Chicago, 1919) *Assistant in Physiology*

The Physiological Action of the Fumes of Iodine.

PAUL JOSEPH SEDGWICK, S.B. (Chicago, 1918) Fellow in Botany

Botany

Tyloses in Menispermum.

WILLIAM ALLEN SMILEY, S.B. (Grinnell College, 1916)

Assistant in Physiology

Effect of the glands of internal secretion on the growth and chromogenic power of B prodigiosus.

JAMES HOLLINGSWORTH SMITH, A.B. (Monmouth College, 1917)

Research Assistant in Chemistry

Research on Hydrogen Overvoltage completed. Arsphenamine and related products (in progress).

WARREN BRAMAN SMITH, A.B. (Carroll College, 1912)

Assistant in Anatomy

Histological Observations on the Tissues of the Aged.

MABEL STOCKHOLM, A.B. (Mills College, 1918)

Assistant in Physiological Chemistry

(With Alice Rhode): Effect of Thyroid Feeding on Nitrogen Elimination.

HELEN MABEL STRONG, S.B. (Chicago, 1917) *Fellow in Geography*

Co-author of Arable Land of the United States, Yearbook of Agriculture, 1918, pp. 433-41. Has important studies well advanced on (a) The Geography of Cleveland, (b) Cape Cod, and (c) Land Utilization and Classification in the South.

FRIEDRICK KARL SWOBODA, S.B. (Chicago, 1918)

Fleischmann Fellow in Physiological Chemistry

Research on Yeast Nutrition in progress. Paper ready for publication: The Quantitative Distribution of Water. Soluble Vitamine in Dog Tissues as determined by the Yeast Cell Method.

GEORGE ADDISON TALBERT, S.B. (Ohio Wesleyan Univ., 1888)
 S.M. (Ibid., 1891) *Assistant in Physiology*
 Studies on the Secretion of Sweat.

HARRIET WILLIAMS VAN NOSTRAND, A.B. (Barnard College,
 1918) *Geology and Paleontology*
 Is doing research work on Lower Devonian faunas of Missouri.

ARTHUR HERMAN WEILAND, S.B. (Carleton College, 1917),
 S.M. (Chicago, 1919), Assistant in Physiology *Physiology*
 The Physiological Action of the Fumes of Iodine.

ELIZABETH PAULINE WOLF, S.B. (Chicago, 1918)
Assistant in Pathology
 Effect of Feeding Yeast on Antibody Production (with J. H. Lewis) Jour.
 Infect. Diseases, October, 1919. Now engaged in research on Chemistry
 of Inflammation.

SYBIL WOODRUFF, A.B. (University of Kansas, 1916), S.M.
 (Chicago, 1919) *Home Economics*
 Chemical Changes in fats in frying, Jour. Home Econ., Oct., 1919. Varia-
 tion in Strength of Coffee Brews, Tea and Coffee Trade Jour., Aug., 1916.

ELECTED FROM FACULTY MEMBERS

WILLIAM JOHN CROZIER, A.M. (Harvard, 1912), Ph.D. (Ibid.,
 1915) *Assistant Professor of Zoology*
 Numerous zoological papers in field of comparative physiology. Research:
 Comparative Physiology of Nervous System of Invertebrates.

WILLIAM F. E. GURLEY, (Cornell University) Associate Curator,
 Walker Museum *Invertebrate Paleontology*
 Many papers on Invertebrate Paleontology have been published.

EVELYN GERTRUDE HALLIDAY, S.B. (Chicago, 1915)
Instructor in Home Economics
 Instructor and chairman of Research Division of the Department of
 Home Economics, Boulder University, Fort Collins, Colorado, for two
 and one half years.

ADOLPH CARL NOÉ, A.B. (Chicago, 1900), Ph.D. (Ibid., 1905)
Assistant Professor of German Paleobotany

LYDIA JANE ROBERTS, Ph.B. (Chicago, 1916), S.M. (Ibid., 1919)
Assistant Professor of Home Economics
 What is Malnutrition, U. S. Dept. Labor, Children's Bur. Pub., No. 59.
 Review of Recent Literature on Malnutrition in Children, Jour. Home
 Econ., XI, 5, 1919.

DERWENT STAINTHORPE WHITTLESEY, Ph.B. (Chicago, 1913),

A.M. (Ibid., 1915)

Instructor in Geography

Research in past largely in History. Ph.D. thesis, nearly completed, is on History of the Springfield Armory. Is carrying on important research in Political Geography in preparation for giving courses in that subject in the Department.

ELECTED TO ASSOCIATE MEMBERSHIP

| | |
|------------------------|--|
| LYMAN CHALKLEY, JR. | <i>Undergraduate Student in Chemistry</i> |
| HARRY LEON COX | <i>Graduate Student in Chemistry</i> |
| MARIE FARNSWORTH | <i>Graduate Student in Chemistry</i> |
| ANNE BRAID HEPBURN | <i>Graduate Student in Physics</i> |
| SAMUEL JACOB JACOBSON | <i>Undergraduate Student in Chemistry</i> |
| ROBERT STERN LANDAUER | <i>Graduate Student in Chemistry</i> |
| CLARENCE JOHN MONROE | <i>Graduate Student in Chemistry</i> |
| ELSIE MARIE PLAPP | <i>Graduate Student in Mathematics and Physics</i> |
| EMIL DURBIN RIES | <i>Undergraduate Student in Chemistry</i> |
| HERMAN BERNHARD SIEMS | <i>Graduate in Chemistry</i> |
| STEWART DUFFIELD SWAN | <i>Graduate in Chemistry</i> |
| MARGARET FITCH WILLCOX | <i>Graduate in Chemistry</i> |

There were two meetings of the Chicago Chapter during the Winter Quarter, 1920. The first one was held February 19, 1920, and was addressed by Professor W. D. Harkins of the Chemistry Department. The second meeting was held on March 11, 1920. Doctor William D. MacMillan of the Department of Astronomy gave an illustrated talk on the Structure of the Universe.

During the Winter Quarter the following members were elected to the chapter:

GRADUATE STUDENTS

IRA GARNETT BARBER, A.B. (Queen's University, 1916) *Physics*

CLARENCE EHNIÉ BROEKER, S.B. (University of Illinois, 1919)

Chemistry

Working on Conductivity of Extremely Dilute Solutions. Separation of Isotopes.

YING CHANG CHENG, S.B. (Purdue University, 1917) *Chemistry*

Is working on the attraction between water and various organic groups.

MARIE DYE, S.B. (University of Chicago, 1914), S.M. (Chicago, 1917) *Fellow in Home Economics Food Chemistry*

Basal Metabolism of Women Students. Distribution of Sulphur in Food.

- WARREN WALTER EWING, S.B. (Parsons College, 1912), S.M.
(Chicago, 1918) *Assistant in Chemistry*
Has been working for one year on the surface energy of a liquid metal.
- DANIEL JEROME FISHER, S.B. (University of Chicago, 1917)
Geology
Research in progress on the Devonian Fauna of the MacKenzie Valley;
Also the Pre Cambrian of Ontario with Canadian Geological Survey.
- MARGARET BRADLEY FULLER, S.B. (Northwestern University,
1913), S.M. (Chicago, 1919) *Fellow in Geology*
Postglacial Sedimentation in the Connecticut Valley in Massachusetts.
Has been instructor in geology in Smith College.
- FORREST ALVA KINGSBURY, Ph.B. (Central College, 1909), A.M.
(Yale, 1911) *Fellow in Psychology*
Group Intelligence Tests for Primary Schools.
- MOTONORI MATSUYAMA, (Kyoto University, 1911), Assistant
Professor of Geophysics, Kyoto Imperial University *Geology*
Published: Elasticity of the Earth's Crust, (with Prof. T. Shida).
Measurements of the Differential Coefficient of Gravity on the Jalint Atoll.
Research in progress: Determination of rigidity, elasticity, and viscosity of
ice, by Professor Michelson's method.
- KATHARINE LUCILLE MCCLUSKEY, S.B. (University of Chicago,
1918) *Organic Chemistry*
Research, A new synthesis of Kynurenic Acid.
- ARTHUR CRANE MCFARLAN, A.B. (Cincinnati University,
1919) *Fellow in Geology* *Invertebrate Paleontology*
- EDISON PETTIT, B.Ed. (Nebraska State Normal School, 1910)
Assistant in Astronomy
Solar Eclipse, 1918; Measure of Double Stars, 1917; Solar Prominences,
1919.
- LILLIAN GRACE REYNOLDS, S.B. (Chicago, 1919) *Botany*
The female Gametophyte of *Microcycas*.
- GARVIN DENNIS SHALLENBERGER, S.B. (Tulane University,
1917), S.M. (Ibid., 1919) *Physics*
- HERMAN BERNHARD SIEMS, S.B. (Chicago, 1919) *Chemistry*
Properties of Barium Manganate (Work in progress).
- WILLIAM RALPH SMYTHE, A.B. (Colorado College, 1916), A.M.
(Dartmouth, 1919) *Physics*

ELECTED TO ASSOCIATE MEMBERSHIP

| | |
|--------------------------|--|
| DOROTHY MARION ASHLAND | <i>Graduate Student in Bacteriology</i> |
| IRA SPRAGUE BOWEN | <i>Graduate Student in Physics</i> |
| JAMES MILTON EGLIN | <i>Graduate Student in Physics</i> |
| VESTUS TWIGGS JACKSON | <i>Graduate Student in Chemistry</i> |
| ALFRED EDWARD JURIST | <i>Graduate Student in Chemistry</i> |
| ARTHUR PRESTON LOCKE | <i>Graduate Student in Chemistry</i> |
| HENRY CASTLE ALBERT MEAD | <i>Graduate Student in Chemistry</i> |
| RAY WILL METCALF | <i>Undergraduate in Chemistry and Physics</i> |
| AVERY ADRIAN MORTON | <i>Graduate Student in Chemistry</i> |
| ELOISE PARSONS | <i>Graduate Student in Physiological Chemistry</i> |
| IMOGENE DOLORES WILLARD | <i>Graduate Student in Chemistry</i> |

On May 5, 1920, the regular meeting of the Chicago Chapter for the Spring Quarter was held at the Quadrangle Club. Doctor Henry B. Ward gave an illustrated address entitled On the Trail of the Pacific Salmon.

The following members were elected:

GRADUATE STUDENTS

- JOHN MORRIS ARTHUR, S.B. (Chicago, 1919), Assistant in Plant
Physics *Botany*
Carbohydrate Metabolism in Green Sweet Corn during Storage at Different Temperatures (Appleman & Arthur) Jour. Agr. Res., Vol. XVII, No. 4, 1919.
- FRED WILLIAM GEISE, A.B. (Nebraska Wesleyan Univ., 1916),
U. S. Department of Agriculture *Botany*
Experiments on the Value of Greens and as a Source of Potassium for Plant Culture (Joint author). Jour. Agr. Research, Vol. XV, No. 9.
- JAMES NELSON GOWANLOCK, A.B. (Manitoba, 1918), S.B.
(Ibid., 1919) *Zoology*
Work in progress on certain problems of fertilization, begun January, 1920. Published several articles on birds in the Canadian Naturalist.
- EARL HENRY HALL, S.B. (Chicago, 1919), Fellow (Gypsum
Industry) *Botany*
Research, Sulfur Relation to Crop Production.
- JOHN HOBART HOSKINS, S.B. (Earlham College, 1919), *Botany*
Forestry Survey of Orland Township, Cook County, Illinois.

CHAPTER REPORTS

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HORACE CLIFFORD LEVINSON, A.B. (Yale, 1917),

Astronomy and Mathematics

About a dozen papers on Astronomy in Monthly Register. Also, in Popular Astronomy and English Mechanic.

JOHN ROBERT MAGNESS, S.B. (Oregon Agricultural College,

1914), S.M. (Ibid., 1916)

Horticultural Physiology

Pruning Investigations, Oregon Exp. Sta. Bull. Nos. 146, 139. Physiological Pear Ripening Investigations, (In press). Jour. Agr. Research.

JOHN PRESTON MINTON, S.B. (Mass. Inst. of Technology, 1912)

Fellow in Physics

Physics

Dielectric Spark Cog, G. E. Rev., 1913. Calibration of Wireless Ware meters, 1912. Electron Physics, Parts I-V, G. E. Rev., 1915. Vacuum Characteristics of Cathode Ray tubes, G. E. Rev., 1915. Measurements of Dielectric Loss and Power Factors, A. I. E. E., 1915.

HARRY WYATT RICHEY, S.B. Agr. (Univ. of Nebraska, 1914)

Plant Physiology

Physiology of the American grape in relation to pruning and fruiting.

JANET ELIZABETH ROBERTSON, A.B. (Northwestern Univ., 1912)

Botany

The Ecology of Mushroom Culture.

FRANIS BALTRAS SIVICKIS, A.B. (Univ. of Missouri, 1917)

Zoology

Relative Digestibility of Maize Oil (Corn Oil), Cottonseed Oil and Lard (with E. W. Rockwood), Jour. Am. Med. Assn., 71 pp. 1649-50. Metabolic Gradients in Planaria Maculata (Subject of Current Research).

CONSTANCE WIENER, A.B. (Radcliffe College, 1918)

Mathematics

Invariants of Nets of Space Curves (Master's thesis completed, but not published.)

JOHN WOODARD, S.B. Agr. (University of Missouri, 1911),

A.M. (Ibid., 1914) Gypsum Industries Fellow

Botany

Soil Survey of Trumbull County, Ohio (Joint author). Soil Survey of Central and Southwestern Ontario, Canada (Unpublished).

ASSOCIATE MEMBERS

SAMUEL KING ALLISON

Senior College Student in Chemistry and Physics

ARTHUR COHEN

Senior College Student in Chemistry and Physics

C. H. SWIFT, *Secretary*

THE CORNELL CHAPTER, 1919-1920

During the academic year just completed, the activities of the chapter have returned to normal. Owing to lack of data there were no elections this year to associate membership. This election is ordinarily held early in the first term of the year, and the election is based on work started in the junior year, in the case of undergraduates. As noted in the report of last year, there was little opportunity for research work during the period of the return to normal work. The meetings held this year were:

November 12, 1919. Public lecture by Professor A. A. Allen of the department of Zoology on Some Problems with the Common Birds. This lecture was of particular interest because Professor Allen spoke of some of the problems in this field which are still to be solved.

December 3, 1919. Public lecture by Professor S. Simpson of the department of Physiology on The Physiology of the Heart. This lecture was illustrated by several interesting experiments showing muscular and heart actions. A business meeting followed, at which the following were elected to active membership in the chapter:

FRANK APP, B.Sc. (Penn. State, 1911), Ph.D. (Cornell, 1919),
Agronomist, N. J. Agr. Experiment Sta.

Farm Profits and Factors Influencing Farm Profits on 370 Potato Farms in Monmouth County, N. J.

NEE SUN KOO, B.S. in C.E. (Govt. Inst. of Tech. Shanghai),
M.C.E. (Cornell, 1919)

An Analytic Investigation of the K. truss for Stresses and Deflections (thesis).

CHRISTIANA SMITH, A.B. (Mt. Holyoke, 1915), A.M. (Cornell, 1919)
Histology and Embryology
The Lipoid Content of the Kidney.

This was a special election to take care of some candidates whose work had not progressed far enough in the preceding spring to merit election, but who had completed their work before the opening of the University in the fall.

January 21, 1920. Public Lecture by Professor W. W. Rowlee of the department of Botany on Timber Investigations in the Tropics. Professor Rowlee spoke of the work he had done upon the investigation of the properties, growth, and culture of Balsa wood.

March 29, 1920. Public Lecture by Professor E. Merritt of the department of Physics on Methods used for the Detection of Submarines. The work of the consulting scientists at New London during the war was reviewed and some of the results shown.

April 21, 1920. Public lecture by Dr. David White, Chief Geologist of the United States Geological Survey on Oil—a Waning Heritage. Doctor White gave a survey of the available oil supply in this country and in the world. He gave evidence to show that the oil supply was very limited and that the use of oil and its derivatives such as gasoline and lubricants was far in excess of the present supply and growing far faster than the supply.

May 11, 1920. Public lecture by Colonel George Fabyan on The Significance of Two Kinds of Type used in Some Books of the Elizabethan Period. Colonel Fabyan did not maintain that Bacon wrote the Shakesperian plays but he did give photographic evidence to the effect that Bacon used the first edition of Shakespeare to write into it certain secret messages which he did not care to have his contemporaries know. A business meeting followed at which the following resolutions were directed sent to the National Key Committee:

Recommended, (1) that the contract for the manufacture of the key be let to one competent manufacturing jeweler; (2) that a single design is favored; (3) that there are no objections to two sizes; (4) that the key be lettered by the manufacturing jeweler.

The following 44 candidates were elected to active membership in this chapter:

FACULTY

WALTER WARNER FISK, B.S.A. (Cornell, 1910), M.S.A.

(Cornell, 1912) *Assistant Professor of Dairy Industry*
A Study of Some Factors Influencing the Yield and Moisture Content of Cheddar Cheese. Methods of Making Some of the Soft Cheeses. Clarification of Milk for Cheddar Cheese. A Study of the Formation of Ice Crystals in Ice Cream.

THOMAS JOSEPH MCINERNEY, B.S.A. (Cornell, 1910), M.S.A.

(Cornell, 1912) *Assistant Professor of Dairy Industry*
Clarification of Milk. The Babcock Test with Special Reference to Testing Cream. (Co-author.) Determination of Milk Fat in Skimmilk.

HARRY SCHULTZ VANDIVER

Instructor, Mathematics

Note on Fermat's Last Theorem. (Trans. Amer. Math. Soc. 1914.) Extension of the Criteria of Wieferich and Mirimanoff. (Crelle Journal,

1914.) An Aspect of the Linear Congruence. (Bull. Amer. Math. Soc., 1915.) The Generalized Lagrange Indeterminate Congruence. (Annals of Math., 1917.) Note on the Distribution of Quadratic Residues. (Bulletin, 1916.) Proof of a Property of the Norm of a Cyclotomic Integer. (Bulletin, 1919.) On the First Factor of the Class Number of a Cyclotomic Field. (Bulletin, 1919.)

WALTER DENSLOW WAY, D.V.M. (Cornell, 1917)

Instructor, Veterinary

Coccidiosis in Cattle. Indigestion with Hydrocephalum. Volvulus of the Colon. A Case of Dystocia. Symptoms and Control of Stomach-worm Disease.

GRADUATE

ROY DAVID ANTHONY, B.S. (Univ. of Rochester, 1908), B.S.A. (Cornell), M.S.A. (Cornell, 1913)

Professor of Horticulture, Penn. State College

Inheritance of Certain Characters of Grapes. (With U. P. Hedrick, N. Y. Agr. Exp. Sta., Geneva, Bull. 45, 1915.) Some Notes on the Breeding of Raspberries. (N. Y. Agr. Exp. Sta., Geneva, Bulletin 417, 1916.) Twenty years of Fertilizers in an Apple Orchard. (With U. P. Hedrick, N. Y. Agr. Exp. Sta., Bull. 460, 1919.) Asexual Inheritance in the Violet.

JAMES WILLIAM BENNER, D.V.M. (Kansas State Ag. College, 1911)

Instructor, Veterinary

Black Leg. (Cornell Veterinarian, April, 1920.) Pneumonia in Swine due to Ps. Pyocyaneus.

HAZEL ELIZABETH BRANCH, A.B. (Kansas), A.M. (Kansas)

Assistant, Biology

Morphology and Biology of the Membracidae of Kansas. (Kansas Univ. Science Bull. Vol. 8; No. 3.) Morphology and Histology of Trichopterous Larvae.

CLAIRE COMSTOCK, A.B. (Smith, 1912), A.M. (Columbia, 1916)

Traveling Fellow, Smith College

Meaning and Imagery.

LEON FRANCIS CURTISS, A.B. (Cornell, 1917) *Instructor, Physics*

Physical property of Thin Films. (In press, for publication in Phys. Rev.) Physical property of Thin Films II. (In press for publication in Phys. Rev.)

JOHN DETWEILER DETWILER, B.A. (Queens Univ., 1912), M.A. (Queens Univ., 1913)

Instructor, Entomology

The Pearly Freshwater Mussels of Ontario. (Biol. Contributions from St. Andrews College.) Notes on the Repugnatorial Glands of Certain Notodontid Caterpillars. (Annals of the Ent. Soc. of Am.) Notes on

Some Little Known Pests of Red Clover. (Jr. Amer. Assoc. of Economic Ent.) An Investigation of the Repugnatorial Glands of Certain Caterpillars. A Biological Study of Three Little Known Insects Injurious to Red Clover.

DEAN LAFEVER GAMBLE, B.S. (Cornell, 1916) *Instructor, Zoology*
The Use of Steroscopic Roentgenograms in Studying the Circulating System of Vertebrates. (With R. O. Hitchcock, Anat. Record, March, 1920.) The Interpretation of the Osteoclast. The Morphological Components of the Definitive Vertebra in Urodeles.

LOUIS BENJAMIN HOISINGTON, A.B. (Univ. of Oregon, 1915),
Ph.D. (Cornell, 1920) *Instructor, Psychology*
An Example of the Fractionation of Data from the Method of Constant Stimuli for the Two-point Limen. (Amer. Jour. of Psychol., 28: 585.)
On the Non-visual Perception of the Length of Lifted Rods.

JOHN STEPHENS LATTA, A.B. (Miami Univ. of Ohio, 1916)
Instructor, Histology and Embryology
The Morphology of the so-called Balancers in Certain Species of Amblystoma. (The Anat. Record, Vol. 17, No. 1.) The Development of the Peyer's Patch in the Intestine of the Rabbit.

GORDAN PETER MCROSTIE, B.S.A. (Ontario Agr. College, 1912)
Investigator, Plant Breeding
Inheritance of Anthracnose Resistance as Indicated by a Cross Between a Resistant and a Susceptible Bean. (Phytopathology 9:141-148, 1919.)
Inheritance of Disease Resistance in the Common Bean. (Doctor's thesis.)

GIOVANNI MARTINAGLIA, D.V.M. (Toronto Veterinary College, 1919)
The Cultivation of the Bact. Tuberculosis Direct from Sputum and Infected Tissue.

WILLIAM MARION PIERCE, A.B. (Cornell, 1918) *Assistant, Physics*
The Electrolytic Capacity of Platinum Electrodes in Alcoholic Solutions.

ROBERT RENTOUL REED, B.S. (Cornell, 1889)
The Design and Construction of an Electric Furnace for Melting Steel.

MOACYR ALVES DE SOUZA, Medico Veterinaire (Superior School of Agr. and Vet. Medicine, Brazil, 1917)
The Extent of Occurrence of Fatty Degeneration in Domesticated Animals. (Thesis.) Thermo-precipitation Test for the Diagnosis of Pasteurellosis in Cattle and Swine.

ALICE HELEN SULLIVAN, A.B. (Univ. of Colorado, 1916), A.M.
(Univ. of Colorado, 1916) *Fellow, Psychology*
Experimental Study of Kinaesthetic Imagery.

KUO-FENG SUN, B.S. (Graduate Univ. of Pekin, 1916), M.S. (Cornell, 1919)

Thermal Measurement of Alternating Current. (Thesis M.S. in Cornell Library.)

MARCOS A. TUBANGUI, D.V.M. (Univ. of the Philippines)

Studies on the Excretion and Decomposition of Hexamethylenamine. The Blood of the Pig, Normal and in Hog Cholera. (With C. E. Hayden.) Studies on the Normal Blood of the Domesticated Animals. (With C. E. Hayden.) The Blood of the Horse in Azoturia. (With C. E. Hayden.)

LAURENCE PAUL WEHRLE, B.S. (Kansas State Agr. College, 1914), M.S. (Kansas State Agr. College, 1916)

Investigator in Entomology

Observations on Reproduction in Certain Parthenogenetic and Bisexual Nematodes Reared in Artificial Media. (Trans. Amer. Microscopical Soc., July, 1918.) The Biology of Certain Clover Pests.

THOMAS KENNERLY WOLFE, B.S. in Agr. (Virginia Polytechnic Inst., 1914), M.S. in Agr. (Virginia Polytechnic Inst., 1915)

Assistant Agronomist, Virginia Agr. Exp. Station

Further Evidence of the Immediate Effect of Crossing Varieties of Corn on the Size of the Seed Produced. The Effect of Hybridization on Maturity and Yield in Corn. Anomalous Seed in Zea Mays. Effect of Soil Moisture on Growth and Maturity in Maize. (With T. B. Hutcheson.) Fasciation in Maize Kernels. Relation between Yield and Ear Characters in Corn. (With T. B. Hutcheson.) Inheritance of Certain Vegetative Characters in Maize and Their Relation to Grain Production.

RUTH AGNES YEATON, A.B. (Mt. Holyoke, 1913)

The Effect of Concentration Upon the Photoelectric Effect in Electrolytic Cells Containing Alcoholic Solutions of Rhodamine-B.

MICHAEL JACOB ZIGLER, A.B. (Bridgewater College, 1916), A.M. (Clark Univ., 1917), Ph.D. (Cornell, 1920)

Assistant Professor Psychology, Bridgewater College

The Child and School Entrance. (Ped. Sem., 25:25.) An Experimental Study of Visual Form.

UNDERGRADUATE

HOWARD B. ADELMANN *Assistant, Histology and Embryology*
An Interesting Case of Spina Bifida in a Calf. (The Anat. Record, June, 1920.)

HOWARD GEORGE ALLEN

The Wire Staple Driving Machine.

JOHN WILLARD BARTLETT

Assistant, Chemistry

Absorption of Arsenious Oxide by Stannic Oxide.

- JAMES WELLINGTON BASSETT *Assistant, Chemistry*
Electrolysis of a Solution of Ammonium Trinitride in Methyl Alcohol.
- RAYMOND OWEN HITCHCOCK *Assistant, Histology and Embryology*
The Use of Stereoscopic Roentgenograms in Studying the Circulating System of Vertebrates. (With D. L. Gamble, *Anat. Record*, March, 1920.)
- JULIUS LIVANT *Assistant, Chemistry*
The Isotopes of Lead.
- ROY OLIVER McDUFFIE
Distribution of Hydronitric Acid Between Water and Ether.
- FREDERICK ARTHUR MAY *Assistant, Physics*
The Effect of Temperature on the Dark Current from the Rhodamine-B Photoelectric Cell. (Thesis.)
- DONALD EVERETT RICHMOND *Assistant, Physics*
Study of the Behavior of Three Electrode Vacuum Tube as Oscillator for Audio Frequency Currents.
- MERIT SCOTT *Assistant, Physics*
Ultra-violet and Visible Absorption Spectra of Ortho-cresol-sulphon-phthalein. (Thesis.)
- CHARLES KERR SIBLEY *Assistant, Biology*
A Study of Lotic Insects.
- LOUIS ALEXANDER TURNER
X-Ray Study of the Effect of Dehydration on Crystal Structure. (Thesis.)
- ROBERT MORRIS VOLKERT *Assistant, Forestry*
Growth Studies of Birch, Beech, and Aspen in the Adirondacks. Effect of Fertilizers on the Growth of White Pine Seedlings.
- MORTON POWELL WOODWARD *Assistant, Chemistry*
Theory of Dyeing with Substantive Dyes.

ALUMNI

- CHRISTOPHER H. BIERBAUM, M.E. (Cornell, 1891)
Consulting Engineer
Common Errors in Designing and Machining Bearings. (*Amer. Soc. of Mech. Eng.*, 1919.) Study of Graphite and of its Compounds for Lubricating Purposes. (*Amer. Soc. of Mech. Eng.*, 1917.) Metalography of the Bearing Metals.
- WILLIAM HUTCHINS BOYNTON, D.V.M. (Cornell, 1908)
Chief of Research Laboratory, Bureau of Agriculture, Manila, P. I.
A Study of the Normal Blood of the Carabao. Notes on the Muscular Changes Caused by Intermuscular Injection of Calves with Contagious Pleuropneumonia Virus. A Fatal Parasitic Infection in a Herd of Cattle and Goats. A Disease in Cattle in the Philippine Islands similar to that

Caused by *Anaplasma marginale* Theiler. Rinderpest in Swine. Duration of the Effectiveness of Virulent Rinderpest Blood in the Water Leech. (*Hirudo boyntoni* Wharton.) A New Method of Immunization against Hog Cholera. Immunization against Rinderpest.

DANIEL SCOTT FOX, B.S.A. (Cornell, 1913), Ph.D. (Cornell, 1919) *Assistant Professor of Agronomy, Penn. State College*
An Analysis of the Costs of Growing Potatoes. (Cornell Agr. Exp. Station Memoir 22, 1919.) An Economic Study of the Gas Tractor in Pennsylvania. (Penn. Sta. Bulletin 158.) Further Studies on the Economic Effect of the Gas Tractor on Farm Management in Pennsylvania. Cost Accounting on Share Rented Farms. (Unpublished thesis.)

THOMAS MIDGLEY, JR., M.E. (Cornell, 1911)
Assistant Research Director, General Motors Corp., Dayton, O.
The Midgley Indicator. (Bulletin of the General Motors Corp.) Combustion Problems of the Internal Combustion Engine.

GEORGE CORNELL SUPPLEE, B.S. (Cornell, 1913), Ph.D. (Cornell, 1919) *In Charge, Research Laboratory, Dry Milk Co.*
The Lecithin Content of Butter. Certain Changes in Some of the Nitrogenous Constituents of Milk Caused by Bacteria. (Dairy Sci. Jour., 1917.) Variations in the Tests for Fat in Cream and Skimmed Milk. (Cornell Agr. Exp. Sta. Bulletin 360.)

May 18, 1920. Business meeting for the initiation of the new members elected at the last meeting.

June 2, 1920. Business meeting. Officers for the coming year were elected and the names of these will be found elsewhere in this issue of the QUARTERLY.

Due to the increasing costs of carrying on the chapter activities, various methods were considered of reducing the expenses. The chapter did not care to raise the local dues and the following resolution was adopted as the best method of reducing expenses:

Recommended that the QUARTERLY be discontinued and for it a brief annual report be substituted.

The secretary of the chapter was directed to prepare a circular to be addressed to all chapters of Sigma Xi and to lay the matter before the Executive Committee in order that action might be taken at the next General Convention.

Protozoan Parasites of Mice and Men, D. H. Wenrich.

F. G. SWITZER, *Secretary*

During the year 1919-20, under the presidency of Professor Horace C. Richards, five meetings were held with programs as follows:

January 21 Houston Hall
Experiences with the University of Pennsylvania Base Hospital
in France—J. B. Carnett (Colonel and Director of U. S.
Army Base Hospital No. 20, University of Pennsylvania.)
The New Science of Chemotherapy—J. A. Kolmer.

May 26 Flower Observatory of University of Pennsylvania,
Highland Park, Pa.
The Einstein Theory of Relativity—Horace C. Richards.
Star Clusters and Nebulae, Eric Doolittle, Director of the
Observatory.

Following the program, there was an informal reception with refreshments in the trophy room of the club.

At each of the regular meetings, the order of procedure was: 6:30 supper; 7:30 business meeting; 8:00 addresses followed by inspection of laboratories and special exhibits.

At the Zoological laboratories, were given demonstrations of Orthopteran chromosomes, parthenogenetic tadpoles, minnows which feed on mosquito larvae, effect of starvation on catalase content of grasshoppers, Zoology in the A. E. F., and charts showing proficiency of freshmen in Zoology I, as compared with the proficiency in other collegiate courses.

At the laboratory of Physics, the exhibits included Tesle High Potential Transformer, Talking and Singing Arcs, X-ray experiments, Microscope and Polarizing Objects, Geissler tubes, Zeeman effect, Radium Luminosity experiments, Receiving apparatus in Radio Room.

All the meetings were well attended, the largest number being at the Observatory, where supper was served on the lawn to 150 members and guests under the gracious auspices of Professor and Mrs. Eric Doolittle.

NEW MEMBERS ELECTED IN 1919-20 FROM THE INSTRUCTIONAL STAFF

EUGENE ALLEN CASE, M.D. Medico-Chirurgical College 1908.

Associate Professor of Pathology, Graduate School of Medicine, University of Pennsylvania. Formerly Demonstrator, Assistant and Associate Professor of Pathology in Medico-Chirurgical College, Philadelphia. Formerly Professor of Pathology and Bacteriology in Medical School of Wake Forest University, Wake Forest, N. C. Director of laboratory at U. S. Naval Hospital, League Island, Pa., during the War.

Publications: Laboratory Studies of the Epidemic of Influenza at the U. S. Naval Hospital, Journal A. M. A., Jan. 25, 1919, (with F. J. Dever and R. S. Boles.)

LYDA MAY DEGENER, A.B., M.A. (Cornell University, 1914, 1916). *Ph.D. to be conferred by Cornell University in June 1920. Research Assistant, Wistar Institute.*

Research: The physiological activity of the Thyroid gland in the white rat with the varying effects of diet on both the thyroid and hypophysis. Publications: The effect of the thyroid extirpation on the hypophysis in the rabbit. Quar. Jour. exp. Physiol., VI No. 2. Effect of castration of the thyroid in the rabbit. Joint paper with A. R. Livingston, Physiological Society, Dec., 1913. The development of the dentary bone and teeth of the lower jaw of Amia calva, in print, Jour. Morph., completed at Wistar Institute, April, 1919, accepted as Ph.D. thesis by Cornell University.

MARGARET WASSON HENDERSON, B.S., M.S., Ph.D. (University of Pennsylvania 1912, 1913, 1919). *Assistant Curator of herbarium, Botanical Hall, 1916-19. Research Assistant to Professor E. T. Reichert, 1912-15.*

Research: Studies on genera of Ericaceae. Publications: Comparative Study of Pyrolaceae and Monotropaceae with reference to Ericaceae. 65pp. with illustrations, in Botanical Contributions, University of Pennsylvania, 5, (1919), Plant hybrid tissues and those of Parents, under Dr. Reichert, in Carnegie Publications, (1919.)

BALDWIN H. LUCKE, M.D. (*Medico-Chirurgical College, 1912.*) *Dr. P.H. University of Pennsylvania, 1916. Instructor in Pathology, School of Medicine, U. of P., 1919-. Assistant Instructor of Pathology, U. of P., 1917-1919. Lieutenant and Captain U. S. Army, 1917-1919.*

Research: General Pathological Anatomy especially of the cardio Vascular system and of the acute infections diseases. Publications: Cytological Studies of Pleural exudates complicating influenza. Amer. Jour. Med. Sci., 1919, 158: 577-600. A new bi-flagellated Protozoon Pathology of Pneumonias. Penn. Med. Jour., 1920, etc.

MOTOMATSU MATSUMOTO, M.D. Tokio Charity Hospital Medical School, 1912; Imperial University of Tokio, 1912-1914; Columbia University 1916. *On Medical Staff in Juntende Hospital, Tokio, Japan.*

Research at the Rockefeller Institute for Medical Research, N. Y., and also University of Pennsylvania. Studies in the preparation of bacterial antigens with special references to B. typhus antigen. (in press.) A study of Hemagglutinins and Hemolysins in Horse serum in relation to Serum Therapy. (with J. A. Kolmer, in press.)

WILLIAM SPRAGUE PARDOE, B.A. Sc. University of Toronto, 1904; 1904-1908 Designing Engineer with the Canada Foundry Co.; 1908-1909 Demonstrator at University of Toronto; Assistant Professor in Civil Engineering, *University of Pennsylvania.* Associate member of the American Society of Civil Engineers and of the Engineering Institute of Canada.

Coefficient of Discharge of Venturi Meters; Notes on Use of Slide Rule; Differential Gage; Standard Short Tube; Form of Vertical Velocity Curve in Streams. At present engaged in special investigation of Power Plant Development along the Housatonic River.

ALICE MAY RUSSELL, B.S., M.S., Ph.D. University of Pennsylvania, 1915, 1917, 1919. *Moore Fellow in Botany, University of Pennsylvania.*

Research: Investigation of the Poke, *Phytolacca decandra*. Publications: A comparative Study of *Floerkea proserpinacoides*, and Allies. Contrib. Bot. Lab. Univ. of Penn. 4: 401-418, 2 pl. The Macroscopic and Microscopic Structure of some hybrid *Sarracenias* Compared with that of their parents. Ibid., 5:3-41, 4 pl.

JAMES KELLUM SMITH, A.B., Amherst College, 1915, B.S. in Architecture, University of Pennsylvania, 1919-. Assistant in Architecture, University of Pennsylvania, 1917-18, 1919. Lieutenant in Aviation Service U. S. Army. Associate Member of the Sigma Xi, 1918. Elected member Tau Sigma Delta, 1918-19. Winner of the Stewardson foreign traveling scholarship, 1919. (On leave of absence.) This year doing graduate work as candidate for M.S. in Architecture, June, 1920.

CHARLES ROOT TURNER, A.B. 1895 University of North Carolina, D.D.S., 1898 University of Pennsylvania, M.D. 1899 University College of Medicine, Richmond, Va. Professor of Mechanical Dentistry and Metallurgy U. of P. 1902-. Dean of the School of Dentistry, University of Pennsylvania. Editor of American text-book of Prosthetic Dentistry, etc.

ASSOCIATE MEMBERS

LEON LLOYD GARDNER, A.B., Pomona (1916), M.S. Pennsylvania (1919). *Assistant in Zoology*
Present Research: Studies and adaptations of birds' tongues.

JOHN CECIL RHODES, B.S. in Chem. Eng., University of Pennsylvania, 1919.

Instructor in Organic Chemistry, University of Pennsylvania
Research: Methods of preparation and analysis of organic compounds, working under direction of Professor Walter T. Taggart.

ELLA E. SCHMELZ, D.D.S. 1918, *University of Pennsylvania, Occupant of Pennsylvania College of Dentistry Research Fellowship for 1919-20. Investigation of pathology and treatment of Leukoplakia.*

HAROLD BERNHARDT

Assistant in Botany

MARVIN S. DUNN

Assistant in Botany

ARTHUR KELLY

Assistant in Botany

LESLIE IREDELL (Arch.)

JOHN WOOLSON BROOKS (Arch.)

RICHARD HENRY LACKEY, JR. (Arch.)

ANTHONY JOHN SCHOB (C.E.)

EMORY FRANK STOVER (C.E.)

JOHN W. JONES (E.E.)

HAROLD IVAN SHAKESHAFT (E.E.)

ROLLIN MARLMESTON CLARK (M.E.)

CLARENCE ALEXANDER WRAY, JR. (M.E.)

ALEXANDER HOLCOMBE 3d (Ch.E.)

EDWIN FREDERIC PIKE (Ch.E.)

ANNA MARGARET MULLIKIN (Grad. Student)

SARA PERLMAN, B.S. in Education, Instructor in Clinical Pathology,
Grad. School of Medicine.

W. H. F. ANDERSON, *Secretary*

UNIVERSITY OF WASHINGTON CHAPTER

During the academic year 1919-1920 the University of Washington Chapter has held eight regular meetings for the discussion of scientific papers and the conduct of its business, and has sponsored two public lectures of a scientific nature, one of these in cooperation with the local chapter of Phi Beta Kappa.

The scientific programs were as follows:

November 13, 1919. Multiplex Radio Telegraphy and Telephony, by J. R. Tolmie, Francis M. Ryan and Roy O. Bach.

December 10, 1919. Elements of the Seventh Group, by J. D. Ross, superintendent of the municipal light and power system of Seattle.

January 21, 1920. A Modification of the Wassermann Test, by Dr. G. Alfred Magnusson.

February 11, 1920. Airplane Airspeed Meters, by S. Herbert Anderson.

March 10, 1920. Methods of Measuring Intelligence, Information and Opinion, by Stevenson Smith.

April 14, 1920. Binary Stars, by S. L. Boothroyd.

May 12, 1920. Order and Amplitude of Harmonics in Voltage Wave Forms with Indicating Instruments, by Leslie F. Curtis.

June 2, 1920. Gravitation from Newton to Einstein, Presidential address by E. T. Bell.

The public lectures were as follows:

April 27, 1920. Colloids, by Harry N. Holmes, head of the department of chemistry, Oberlin College.

June 18, 1920. The Chemistry of the Stars, by Paul W. Merrill, Mount Wilson Observatory.

The chapter, at its third meeting, January 21, 1920, passed an amendment to its by-laws providing for the election of associate members in accordance with the action taken by the eighteenth and nineteenth conventions of Sigma Xi.

The following were elected to membership:

ACTIVE

UNDERGRADUATES

- | | |
|--|-------------------------------|
| ROY ODELL BACH | <i>Electrical Engineering</i> |
| Multiplex Radio Telephony, senior thesis. | |
| ARTHUR BEVAN | <i>Forestry</i> |
| Growth and Reproduction in the White Spruce Region of British Columbia, Bul. Forest Branch, British Columbia Govt., Nov. 1919. | |

GRADUATES

- | | |
|--|---------------------|
| FLOYD W. GAIL, A.B., M.A. | <i>Botany</i> |
| Some Experiments with Fucus, Publ. Puget Sound Biol. Sta., 2; 139-151, 1918. | |
| GRACE ALMA HILL, B.S. | <i>Bacteriology</i> |
| Bacteriology of Spoiled Chocolates, thesis for M.S. | |
| GRACE ELIZABETH HOWARD, B.S. | <i>Botany</i> |
| Extraction of Pigments of Nereocystis Leutkeana, to be published in Publ. Puget Sound Biol. Sta. | |

ASSOCIATE

UNDERGRADUATES

- | | |
|----------------------|-------------------------------|
| HAROLD STANLEY GILL | <i>Chemistry</i> |
| MARJORIE C. GUNN | <i>Chemistry</i> |
| BELLA KRACOWER | <i>Pharmacy</i> |
| ECHO PEPPER | <i>Mathematics</i> |
| WALDO LONSBURG SEMON | <i>Chemistry</i> |
| FRED JOHN SINGER | <i>Electrical Engineering</i> |
| ROBIN JEAN WILKES | <i>Pharmacy</i> |

GRADUATES

- | | |
|-----------------------------------|---------------------|
| HAROLD HOTELLING, A.B. | <i>Mathematics</i> |
| WILBERT SHERWOOD SLEMMONS, B.S. | <i>Bacteriology</i> |
| A. F. CARPENTER, <i>Secretary</i> | |

THE MICHIGAN CHAPTER

The initiation banquet of the Michigan Chapter which was held on June 3, 1920, was one of the most successful meetings of the last few years. A brief talk was given to the initiates by our president, Professor John C. Parker, in which was outlined the aims and ideals of Sigma Xi.

After the initiation Professor C. E. McClung, our National President and Chairman of the Section of Biology and Agriculture of the National Research Council, gave a very inspiring lecture on the relation of the Sigma Xi to the National Research Council. We are sincerely grateful to Professor McClung for his kindness in coming here and for the great encouragement he gave us.

Professor E. C. Case, a member of the Williston Memorial Committee, gave a brief talk on the life of Professor Samuel Wendell Williston, in which was outlined the splendid work done by this great champion of research.

Fifty new members were initiated of which fourteen were undergraduates, all from the College of Engineering with the exception of one. The question of associate membership will probably come up for a vote in the fall.

The banquet was attended by about 125 members including the initiates.

MEMBERS ELECTED TO THE MICHIGAN CHAPTER, JUNE 3, 1920

UNDERGRADUATES

| | |
|--|-------------------------------|
| GORDON ROWEN ANDERSON | <i>Electrical Engineering</i> |
| Investigation of magnetic laws and power development. | |
| LEE OWEN CASE | <i>Chemical Engineering</i> |
| Research on the use of the Thermo-ionic Amplifier as a source of current in conductivity work. | |
| JAMES MATEER DARBAKER | <i>Mechanical Engineering</i> |
| ROBERTA ELIZABETH DEAM | <i>Botany</i> |
| Studies in systematic and ecological botany and phytogeography. | |
| ERWIN ERNEST DREESE | <i>Electrical Engineering</i> |
| Has shown marked ability in the application of mathematical analysis to original problems. | |
| JOHN ERWIN GOODWILLIE | <i>Mechanical Engineering</i> |

- WALTER ROLAND HICKLER *Chemical Engineering*
Research on the problem of sedimentation of colloids and suspensions.
- DALE WILMER KAUFMAN *Minerology*
A study of the structure and the methods of identification of opaque minerals under the microscope (nearly ready for publication).
- RAYMOND JACKSON McELHANNON *Electrical Engineering*
Contributions to the theory of power plant design.
- CARL RUDOLPH NYMAN *Mechanical Engineering*
- FRANCIS IGNATIUS SHEAHAN *Mechanical Engineering*
Studies in gas engine design. Theoretical analysis of the offset piston pin construction.
- MELVILLE BIGHAM STOUT *Electrical Engineering*
- HAROLD RALPH SWIFT *Astronomy*
Investigation on the motion of the center of mass of the spectroscopic binary system, Beta Persei.
- EDWARD SMITH WELLOCK *Mechanical Engineering*

GRADUATES

- BETHEL JAY BABBITT, A.B., M.S. *Physics*
Work on the elastic properties of metals in a magnetic field.
- HARRY JAY BAKER, A.B., A.M. *Experimental Psychology*
The test method as an aid in the analysis of mental constitution (Thesis for Ph.D.)
- FREDERICK FRANKLIN BLICKE, B.S. *Organic Chemistry*
Research in Organic Chemistry.
- LEE BONAR, B.A. *Botany*
Rusts of the Douglas Lake Region. Twentieth Report of the Michigan Academy of Science, 1918. Other work in plant pathology.
- JOHN DAVID BOND, A.B., A.M. *Mathematics*
Plane trigonometry in Richard Wallingford's *Quadripartium de Sinibus Demonstratis* (Thesis for Ph.D.)
- CLIFFORD CHARLES BUCHLER, B.S. *Organic Chemistry*
Research in Organic Chemistry.
- DWIGHT CLARK CARPENTER, B.S., M.S. *Chemistry*
Research on osmotic pressure and the swelling of gels.
- FRANCIS HUNTINGTON CASE, B.S. *Chemistry*
Investigation on a new reagent for the precipitation of Sodium.
- EDNA ISABEL GORDON, A.B. *Psychology*
Work on the relation between Traube-Hering waves and the fluctuations of attention.

- MARTHA GUERNSEY, A.B. *Psychology*
Investigation on the limen for tones of different pitch.
- CAMPBELL HARVEY, A.B., M.D. *Medicine*
Work on blood sugar and blood chemistry methods, and on blood changes following intravenous injection of foreign protein.
- JOHN HEMENWAY, A.B., M.S. *Physics*
Conduction of heat by metals of high temperature.
- RICHARD FRANKLIN KEELER, A.B. *Chemistry*
A study of the Carbon Dioxide content of market milk with applications. Journ. Biol. Chem., May, 1920. Studies on a method for determining Aluminum and Magnesium in non-ferrous alloys.
- THOMAS JOHN LEBLANC, A.B. *Bacteriology*
Collaborator in research on virulence, age of culture, and hemolytic power of Bacilli Streptococcus.
- WILLIAM JAMES MCGILL, B.S. *Pharmacy*
Research on the constituents of Digitalis.
- ANAH LENORE BABCOCK MCQUINN, A.B., A.M. *Zoology*
Research on the inheritance of a wing character in *Drosophila melanogaster*.
- MARY LOUISE MORSE, B.S. *Chemistry*
The preparation of the double Peroxycarbonate of Caesium and Cerium.
- JOHN PURL PARSONS, B.S., M.D. *Medicine*
On the nature of the blood-pressure curve produced by stimulation of the peripheral end of the splanchnic nerve (in collaboration with Swale Vincent). Trans. Royal Soc. Canada, (3), XI, 1917. A study of the blood sugar in psychosis (ready for press.) The effect of adrenalin on the blood sugar curves in Dementia Praecox (ready for press.) Work in Progress on interfering bodies in the blood as recognized by the Modified Lewis Benedict blood sugar method.
- WALTER HENRY PIELEMEIER, A.B., A.M. *Physics*
Work on the absorption of inaudible air waves.
- LEWIS STEPHEN RAMSDELL, A.B. *Minerology*
Work on the crystallography and the optical properties of Strychnine Sulphate.
- RICHARD ALFRED ROSSITER, A.B. *Astronomy*
Studies on the elements of the orbit of a minor planet and on the motion in the stellar binary system, Beta Lyrae.
- MAURITS WILHELM SENSTIUS, M.S. *Geology*
On the coffee soils of the provinces Pasoeroean and Kediri (Java). Transactions of the Soil Congress in Java, 1916. On a new insect disease of coffee seedlings. Bulletin Exp. Stat., Malang (Java), 1915. Coffee and rubber fertilizing experiments. Bulletin Exp. Stat., Malang, 1917.

- ERNEST BURTON SKAGGS, A.B., A.M. *Psychology*
Correlations mental tests and school grades. Journ. Educ. Psys. (in press.)
Is grade teaching a profession? Journ. Educ., March, 1920.
- CHESTER BAKER SLAWSON, B.S. *Minerology*
Crystallography of Antimony Tribromide and related compounds (in press.) Fluorescence and phosphorescence of minerals under the Iron arc.
- HAROLD ROBERT SNOW, B.S., M.S. *Organic Chemistry*
Investigation on the chemistry of dyes.
- AVERY BYRON SOULE, B.S. *Chemistry*
Influence of change of carbide concentration on thermo-electromotive potential of shells. War work on the synthesis of poison gases.
- LOUIS DESENBURG STERN, A.B., M.D. *Bacteriology*
Collaborator in investigations on the virulence, age of culture and hemolytic power of Bacilli Streptococcus.
- MANUEL DIAZ SUMULONG, D.V.M. *Anatomy*
Work on the development of the heart in Amphibia.
- PAUL ALANSON WARREN, B.S. *Botany*
Work on inheritance in Cucurbita.
- ELLIOTT ADAMS WHITE, A.B., A.M. *Psychology*
Investigation on the psychology of speech.
- TANZO YOSHINAGA, M.D. *Anatomy*
Ueber die Ursprung der Gefässzellen bei den Amphibien. Acta Proc. Univ. Kioto, Japan, 1920. Experimental diminution of the kidney substance. Journ. Surg. Soc., Japan, 1919. Experimental diminution of the liver substance. Journ. Surg. Soc., Japan, 1918. Surgical shock and adrenalin diminution. Tokio Med. Jour., 1916.

ALUMNUS

- JOSEPH BEAL STEERE, Ph.D. *Professor of Zoology and Curator of Museum of the University of Michigan, 1879-1891. Author of numerous articles on Travel, and on the Natural History and Taxonomy of animals, especially Birds and Mammals.*

FACULTY

- ROCKWELL M. KEMPTON, M.D. *Instructor in Pediatrics*
The effect of intravenous Protein on endo-and exo-toxins. The specific gravity of blood. A case of haemorrhagic smallpox. (All almost ready for publication.)

CHARLES FERDINAND MEYER, Ph.D.

Instructor in Physics

On the vibration of telephone diaphragms. Proc. A. I. E. E., 1912. A further study of the fluorescence produced by Ultra-Schumann Rays (Meyer and Wood.) Phil. Mag. 30: 449. Some spectra in the photographic infra-red. Astrophys. Journ., 1917.

WILLIAM WARNER SLEATOR, Ph.D. *Assistant Professor of Physics*

The absorption of near infra-red radiation by water vapor. Astrophysical Journal, Sept., 1918. Work on aerial photography (to be published soon.)

FRANZ PERRINE ZIMMERLI, M.S.E.

Instructor in Chemical Engineering

Effect of copper plating on depth of case-hardening (being published.) Investigation in Pyrometry and furnace design; on the removal of acids from sludges; and on Chrome steels and methods to determine magnetic properties of steels.

PETER OKKELBERG, *Secretary*

MEMBERSHIP OF MICHIGAN CHAPTER

CORRECTIONS FOR THE QUARTER CENTURY RECORD AND HISTORY

Albert Moore Barrett, A1904 should be Iowa G1904.

Henry Earle Riggs, A1899 should be Kan. A1899.

Arthur Emery Greene not found in the records. The name E. E. Greene is given in the text but other parts of the record show that this refers to Albert Emerson Greene F1905.

Edward William Adamson, U1903 should be U1904.

Ellen Botsford Bach, G1903 should be G1908.

George Plummer Burns, F1904 should be F1903.

Walter Francis Colby, G1903 should be G1906.

Cassius Miles Davis, G1908 should be Union G1908.

Jean Dawson, G1905 should be G1904.

Charles Beylard deNancrede, F1904 should be F1903.

James Edwin Duerden, F1904 should be F1903.

Albert Emerson Greene, F1906 should be F1905.

Karl Eugene Guthe, CF1905 should be CF1903.

Theophil Henry Hildebrandt, G1907 should be Chicago G1907.

Edward Henry Kraus, F1905 should be F1906.

Byron Deloss Niles, U1903 should be U1904.

Charles Lanphier Patton, G1903 should be G1905.

Leigh H. Pennington, Transfer name.

Julius Otto Schlotterbeck, CF1903 should be F1903. There is nothing on record to show that he was a charter member.

Morris Henry Stimson, U1903 should be U1904.

Robert Richardson Thomas should be Robert Richardson Thomson.

Corrections made by the chapter secretary,

PETER OKKELBERG, July, 1920

FROM A CHAPTER SECRETARY

I am enclosing the reports for the past two years and I *hope* they represent the actual facts. I have tried to make them absolutely accurate, but—

As to past records, the inaccuracies begin with the year of founding the chapter here. I shall send you the cards of the members elected in this and succeeding years where they were not included previously.

I studied the table you sent me and unless I can extract lists of the active members of past years there is no hope that I can rectify the mistakes. This I am going to try to do and also attempt to develop a system of keeping records which I have already outlined. If I succeed, I shall send you a copy and you can go over it. I can see the great value in having a permanent secretary, but should not seek the place here.

X. Y. Z.

SIGMA XI SONG

Words by PHILIP E. BROWNING, Dedicated to the Society

Sigma Xi, by thy clear call invited,
We thy sons to thee our faith have plighted,
With one aim, one purpose high united,
Σπουδῶν Ευνῶνες, seekers for truth are we.

Atom, molecule, sine and tangent.
Ancient rock and living cell.
Earth's dark ways, Heaven's mighty wonders,
Shall they not Nature's secrets tell?

Hold aloft the lamp of Science burning,
By its light may we the truth discerning,
Guide mankind, from paths of error turning,
Σπουδῶν Ευνῶνες, seekers for truth are we.

This song is to be sung to music taken from Verdi's Aida. The effect is remarkably good. Should a sufficient number of chapters desire copies it will be possible to have words and music printed together. If two thousand copies could be sold at five cents each the undertaking would pay for itself. Two members of the society have volunteered to underwrite the undertaking for ten dollars each, provided six others will join with them to make the necessary guarantee to the printer. A chapter order to the extent of ten dollars would be equivalent to a guarantee. Chapters or others interested are invited to write directly to Henry B. Ward, Urbana, Illinois.

CHAPTER OFFICERS

LIST FURNISHED BY THE CORRESPONDING SECRETARIES OF THE CHAPTERS

| CHAPTER | PRESIDENT | VICE-PRESIDENT | SECRETARY | TREASURER |
|---------------------------|------------------------|-----------------------|-------------------------|-----------------|
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| Yale..... | H. G. Barbour... | G. A. Baitsell... | R. H. Suttie... | F. L. Cooper |
| Minnesota... | R. E. Scrammon | R. A. Gortner... | A. T. Henrici... | F. K. Butters |
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| Brown..... | P. H. Mitchell. | R. F. Chambers | T. H. Brown... | C. H. Currier |
| Iowa..... | Arthur H. Ford. | Henry L. Rietz. | F. A. Stromsten | L. P. Sieg |
| Stanford.... | D. Campbell... | A. F. Rogers... | W. F. Dietrich | W. F. Dietrich |
| California... | W. L. Jepson... | G. D. Louderback..... | L. C. Uren..... | A. C. Alvarez |
| Columbia.... | J. K. Finch.... | W. I. Slichter... | Harold A. Fales | Harold A. Fales |
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| Michigan.... | John C. Parker. | A. F. Shull.... | P. O. Okkelberg | A. J. Decker |
| Illinois..... | H. F. Moore... | J. A. Detlefsen. | H. J. Van Cleave | B. S. Hopkins |
| Case..... | W. R. Veasey... | C. D. Hodgeman | R. C. Hummel. | T. M. Focke |
| Indiana..... | J. A. Badertscher..... | Will Scott..... | C. A. Malott... | C. E. Edmonson |
| Missouri.... | C. W. Greene... | R. H. Baker... | W. A. Tarr.... | O. R. Johnson |
| Colorado.... | R. C. Lewis... | R. D. Crawford | W. C. Huntington..... | O. A. Randolph |
| Northwestern | U. S. Grant.... | A. D. Black.... | E. J. Moulton... | L. W. Webb |
| Syracuse.... | O. W. H. Mitchell..... | C. C. Adams... | L. C. Petry.... | H. F. A. Meier |
| Wisconsin... | M. F. Guyer... | O. L. Kowalke. | G. W. Keitt... | F. C. Krauskopf |
| University of Washington. | E. Victor Smith | S. H. Anderson. | Allen F. Carpenter..... | T. G. Thompson |
| Worcester... | A. W. Duff.... | H. P. Fairfield... | J. B. Zinn..... | A. J. Knight |
| Purdue..... | E. G. Mahin... | C. G. Woodbury | G. A. Young... | D. D. Ewing |
| Washington University.. | G. O. James... | G. C. Robinson. | T. R. Ball.... | J. M. Greenman |
| District of Columbia... | C. L. Shear... | H. L. Shantz... | H. Hasselbring. | D. R. Harper 3d |
| Texas..... | S. L. Brown... | W. A. Felsing... | G. P. Horton... | H. J. Ettlinger |
| Mayo Foundation..... | A. H. Sanford... | E. C. Kendall... | A. W. Adson... | A. W. Adson |
| North Carolina..... | J. H. Pratt.... | | J. M. Bell..... | |
| North Dakota. | R. T. Young... | B. J. Spence... | B. J. Clawson.. | B. J. Clawson.. |

Offices of Recording and Corresponding Secretary combined according to advice of Convention with the exception of Kansas, Yale, California and Texas in which chapters only the Corresponding Secretary is listed.

List corrected up to December 1, 1920.

OFFICIAL ANNOUNCEMENTS

Associate membership emblems can be secured only by order from the chapter secretary to the national secretary. All orders must be prepaid. Special order blanks sent on request.

SIGMA XI PUBLICATIONS

QUARTER CENTURY RECORD AND HISTORY bound in electric blue cloth. 1886-1911. 7,500 names. 550 pp. \$2.50.

QUARTERLY, Volumes 1-7, 1913-19, four numbers each, unbound, 50 cents per each volume. Forwarded prepaid on receipt of draft or money order in payment of the amount indicated.

Title page and Table of Contents of any volume on request.

Those ordering a complete set of the QUARTERLY and HISTORY will receive in addition until the supply is exhausted without extra cost a copy of each of the Proceedings of the early Conventions as follows:

Seventh (Philadelphia) Convention. 1904. Pamphlet. 15 pp.

Eighth (New York) Convention. 1906. Pamphlet. 7 pp.

Ninth (Chicago) Convention. 1908. Pamphlet. 14 pp.

Tenth (Baltimore) Convention. 1909. Pamphlet. 6 pp.

Eleventh (Boston) Convention. 1909. Pamphlet. 16 pp.

Twelfth (Minneapolis) Convention. 1910. Pamphlet. 27 pp.

Thirteenth (Washington) Convention. 1911. Pamphlet. 27 pp.

Later conventions are reported in the QUARTERLY.

PRINTED BLANKS

The General Convention has instructed the Secretary to forward to chapters under the following stipulations:

Membership Certificates, stamped with the great seal of the Society. In packages of fifty prepaid, on advance payment of \$2.50 for each package. Please specify carefully whether for regular or associate members.

Index Cards, provided a duplicate set be sent for the general index of the Society maintained in the secretary's office. Gratis.

Statistical Record Blanks, for submitting annual reports giving chapter officers, elections, and other statistical data. Gratis.

MAILING LISTS FOR THE QUARTERLY

Chapter secretaries are requested to furnish a correct list of mailing addresses of active members for the printer. Blank forms. Gratis on demand.

The mailing list should be sent early in September and be valid for the academic year. All changes of address and all other correspondence should be addressed to the Secretary of Sigma Xi, Henry B. Ward, Urbana, Illinois.

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